INSIDE RESOURCES
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Wednesday 8 December, 2021

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UPDATE: This report has been updated with comment from TTR.
The Editor

Supreme Court dismisses TTR appeal; sends back to DMC (2)

I have followed this for a while now. It appears to me that TTR have an avenue to have the decision returned to the EPA...
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Neil Bennett, Low Volume Roads (1)

Well written article, shows changes in industry over the years, for better or worse.

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Hardie Pacific investigating CO2 sequestration

Simon Hartley - Wed, 8 Dec 2021

Hardie Pacific's Weora Ltd subsidiary has applied for four prospecting permits across the country – the first step in investigating the carbon sequestration potential of ultramafic rocks.

The company is looking at the suitability of the rocks for either long-term, in-situ carbon storage use via the injection of CO2 rich fluids into the rock, or for offsite mineral carbonation, where the mafic minerals are mined and processed, and then reacted with carbon.

The ultimate aim of the latter is to make stable and inert carbonate minerals, which could then be used for a range of industrial processes.

Hardie Pacific's chief executive Duncan Hardie tells *Inside Resources* he has been considering the concept for the past four years. Applying for the four permits – spread across the Southland, Tasman and Waikato districts – is the first stage in starting to bring a team together to undertake an initial feasibility study.

There is "plenty of interest" from would-be overseas backers for the project, Hardie says, highlighting the project has a long-term focus.

Four permit applications

In Southland, Weora has applied for Minerals Prospecting Permit 60861 (Greenhills), over 27.85 square kilometres, and MPP 60862 (West Dome), over 246.67 sq km – both for two years.

It also has applications in for MPP 60863 (Whakatu), over 321.31 sq km in Tasman, and MPP 60864 (Waikato), over 285.76 sq km in the Waikato – also both for two years.

The Greenhills permit is near the NZAS Tiwai Point aluminium smelter in Bluff, while the Waikato permit is near the Huntly power station.

None of the permits are on conservation land.

Find out more...

Factfile information

Organisation Hardie Pacific

Meeting Paris agreement commitments

Hardie Pacific's head geologist Tom Ritchie tells *Inside Resources* New Zealand annually produces the equivalent of about 80 million tonnes of gross CO2 emissions

"This needs to be cut back drastically to meet the current Paris agreement commitments," he says. The Intergovernmental Panel on Climate Change has signalled negative carbon emissions technologies are required to meet the 1.5°C target.

Ritchie says mapped dunites, harzburgites and serpentinites bodies across the four permit application areas are the initial targets for the study.

"There's several conceptual models available and being developed for CO2 storage via mineral carbonation within ultramafic rocks," he says.

"This research is mostly at the lab scale or using natural analogues and achieving efficient mineral carbonation at near surface pressures and temperatures is the key engineering challenge."

Dun Mountain Ophiolite Belt

The objective is to look at the suitability of the ultramafic rocks/minerals of the Dun Mountain Ophiolite Belt and the Green Hills Complex, either for in-situ storage or carbon mineralisation elsewhere.

"These negative carbon technologies will need to be done in conjunction with companies' reducing their carbon emissions and decarbonisation," Ritchie says, as opposed to being an alternative to reducing emissions.

He says there has been some academic research into ultramafic sequestration models in New Zealand, but also overseas investigations and operating prototypes, including in Iceland.

Hardie Pacific is also looking at ultramafic rocks in some Pacific countries, he says.

The relevant Mg-Fe silicate minerals, notably olivine and serpentine, are widely available in the Dun Mountain Ophiolite Belt as well as other parts of New Zealand, Ritchie says.

Dunite rocks are made up of over 90 per cent of olivine, he says.

Separate investigation into olivine resource

Separate to Weora's investigations, Christchurch start-up company Aspiring Materials has raised $1 million to develop its carbon capture technology.

It is trialling the use of magnesium hydroxide to create a powdery material to capture carbon dioxide, having identified an olivine resource in the Red Hills area of Marlborough as a potential source material, *Inside Resources* reported last month.

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Quarry closures, luxury builds stretch schist supply

Shannon Williams

Higher end, luxury builds have seen a surge in demand for schist, however a reduction in availability and Covid-19 disruptions have put a strain on the sector.

Wanaka Stone owner Lucy Middendorf says lead times have almost tripled over the past few years, as material orders have doubled at least.

"There is an increase in demand for high-end builds with more homes wanting stone...

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Aggregate demand rising; challenges ahead – AQA

Simon Hartley

Nationwide demand for aggregate for roading, construction and infrastructure projects is expected to increase 10 per cent year-on-year, underpinned by more than $57 billion in infrastructure spending.

However, of major concern is 2020's per capita aggregate production rate, which slumped 16 per cent to 6.7 tonnes – a low not seen since 2016 – from 8 tonnes in 2019.

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